

WHAT IS CLAIMED IS:

1. A communication system comprising:
a client configured to transmit a message requesting content specifying an object from a content server; and
a plurality of proxy servers including a downstream proxy server and an upstream proxy server, the downstream proxy server being configured to communicate with the client, wherein the upstream proxy server is configured to retrieve the content from the content server and to forward information associated with the object over a data network to the downstream proxy server prior to the client transmitting another message requesting the object.
2. A system according to claim 1, wherein the upstream proxy server transmits the object to the downstream proxy server based on a predetermined criteria relating to the object.
3. A system according to claim 1, wherein the downstream proxy server and the upstream proxy server communicate over a communications link that includes at least one of plurality of Transmission Control Protocol (TCP) connections to support parallel Hypertext Transfer Protocol (HTTP) transactions, and a multiplexed connection of HTTP transactions.
4. A system according to claim 1, wherein the data network includes at least one of a Very Small Aperture Terminal (VSAT) satellite network, and a terrestrial wide area network (WAN).
5. A system according to claim 1, wherein the plurality of proxy servers include other downstream proxy servers, the upstream proxy server multicasting the object to the downstream proxy servers over the data network.
6. A system according to claim 1, wherein the content server forwards content to the upstream proxy server, the upstream proxy server forwarding the content along with the information associated with the object to the downstream proxy server.
7. A system according to claim 6, wherein the content conforms with a markup language that includes Hypertext Markup Language (HTML).
8. A method of providing content to a client, the method comprising:
retrieving the content specifying an object; and
forwarding information associated with the object to a downstream server prior to the client transmitting a message requesting the object.
9. A method according to claim 8, further comprising:
retrieving the object; and

transmitting the object over a communications link to the downstream server based on a predetermined criteria relating to the object.

10. A method according to claim 9, wherein the communications link in the transmitting step includes at least one of plurality of Transmission Control Protocol (TCP) connections to support parallel Hypertext Transfer Protocol (HTTP) transactions, and a multiplexed connection of HTTP transactions.

11. A method according to claim 9, wherein the communications link in the transmitting step is established over a data network that includes at least one of a Very Small Aperture Terminal (VSAT) satellite network, and a terrestrial wide area network (WAN).

12. A method according to claim 8, further comprising:

retrieving the object; and

multicasting the object to the downstream server.

13. A method according to claim 8, further comprising:

receiving a message requesting the content from the downstream server;

retrieving the content in response to the received message; and

forwarding the content along with the information associated with the object to the downstream server.

14. A method according to claim 13, wherein the content conforms with a markup language that includes Hypertext Markup Language (HTML).

15. A network device comprising:

means for retrieving content specifying an object from a content server; and

means for forwarding information associated with the object to a downstream server prior to the client transmitting a message requesting the object.

16. A network device according to claim 15, wherein the object is retrieved and transmitted over a communications link to the downstream proxy server based on a predetermined criteria relating to the object.

17. A network device according to claim 16, wherein the communications link in the includes at least one of plurality of Transmission Control Protocol (TCP) connections to support parallel Hypertext Transfer Protocol (HTTP) transactions, and a multiplexed connection of HTTP transactions.

18. A network device according to claim 16, wherein the communications link is established over a data network that includes at least one of a Very Small Aperture Terminal (VSAT) satellite network, and a terrestrial wide area network (WAN).

19. A network device according to claim 15, wherein the object is retrieved and multicast to the downstream server.

20. A network device according to claim 15, further comprising:

means for receiving a message requesting the content from the downstream proxy server, the content being retrieved in response to the received message, the content being forwarded along with the information associated with the object to the downstream server.

21. A network device according to claim 20, wherein the content conforms with a markup language that includes Hypertext Markup Language (HTML).

22. A computer-readable medium carrying one or more sequences of one or more instructions for providing content to a client, the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

retrieving the content specifying an object; and

forwarding information associated with the object to a downstream server prior to the client transmitting a message requesting the object.

23. A computer-readable medium according to claim 22, wherein the one or more processors further perform the step of:

retrieving the object; and

transmitting the object over a communications link to the downstream server based on a predetermined criteria relating to the object.

24. A computer-readable medium according to claim 23, wherein the communications link in the transmitting step includes at least one of plurality of Transmission Control Protocol (TCP) connections to support parallel Hypertext Transfer Protocol (HTTP) transactions, and a multiplexed connection of HTTP transactions.

25. A computer-readable medium according to claim 23, wherein the communications link in the transmitting step is established over a data network that includes at least one of a Very Small Aperture Terminal (VSAT) satellite network, and a terrestrial wide area network (WAN).

26. A computer-readable medium according to claim 22, wherein the one or more processors further perform the step of:

retrieving the object; and

multicasting the object to the downstream server.

27. A computer-readable medium according to claim 22, wherein the one or more processors further perform the steps of:

receiving a message requesting the content from the downstream server;

retrieving the content in response to the received message; and

forwarding the content along with the information associated with the object to the downstream server.

28. A computer-readable medium according to claim 27, wherein the content conforms with a markup language that includes Hypertext Markup Language (HTML).